

CLAIMS

1. A composition which comprises a component which is susceptible to free radical attack, said composition comprising, as a free radical scavenger, at least one particle having a size not exceeding 100 nm of an oxide of a rare earth or
5 transition metal possessing adjacent oxidation states.
2. A composition according to claim 1 wherein the energy levels of said adjacent oxidation states do not differ by more than 2 eV.
3. A composition according to claim 1 or 2 wherein the oxide is of cerium, manganese, vanadium, chromium or iron.
- 10 4. A composition according to claim 3 wherein the oxide is manganese oxide.
5. A composition according to any one of the preceding claims wherein the oxide has a particle size not exceeding 20 nm.
6. A composition according to claim 5 wherein the oxide has a particle
15 size from 5 to 15 nm.
7. A composition according to any one of the preceding claims wherein the oxide is present in an amount from 0.5 to 20 % by weight.
8. A composition according to any one of the preceding claims which is a UV sunscreen composition.
- 20 9. A composition according to any one of the preceding claims which is suitable for cosmetic use.
10. A composition according to claim 8 or 9 which contains a UV sunscreen agent which is adversely affected by free radicals.
11. A composition according to claim 8 or 10 wherein the organic
25 sunscreen agent is a paraaminobenzoic acid, ester or derivative thereof, a methoxy cinnamate ester, a benzophenone, a dibenzylomethane, an alkyl- β,β -phenyl acrylate, a triazine, a camphor derivative, an organic pigment, a silicone based sunscreen agent or 2-phenylbenzimidazolyl-5 sulphonic acid or phenyldibenzimidazolyl sulphonic acid.
12. A composition according to any one of claims 8 to 11 which is a
30 sunscreen.

-22-

13. A composition according to any one of claims 8 to 12 which is in the form of a lotion, gel, dispersion, cream, milk, powder or solid stick.
14. A composition according to claim 12 or 13 which comprises a water-dispersible and an oil-dispersible metal oxide.
- 5 15. A composition according to any one of claims 1 to 14 which is a polymeric composition.
16. A composition according to claim 15 wherein the polymeric material is thermoplastic.
17. A composition according to claim 15 wherein the polymeric material
10 is thermosetting.
18. A composition according to any one of claims 15 to 17 which is in the form of a three dimensional article.
19. A composition according to any one of claims 15 to 17 which is in the form of a film or a fibre or a fabric.
- 15 20. A composition according to claim 19 which is in the form of a photographic film.
21. A composition according to any one of claims 15 to 17 which is in the form of a coating composition.
22. A composition according to claim 15 which is in the form of a paint or
20 varnish.
23. A composition according to any one of claims 1 to 7 which comprises at least one organic veterinarily, agriculturally and/or horticulturally active compound.
24. A composition according to any one of claims 1 to 7 suitable for
25 household use which comprises at least one organic biocide.
25. A composition according to claim 23 or 24 wherein the active compound is a herbicide, fungicide, insecticide, acaricide, miticide or rodenticide.
26. A composition according to claim 1 substantially as hereinbefore described.
- 30 27. Use of a particle of a metal oxide as defined in any one of claims 1 to

-23-

6 to reduce the concentration of one or more components susceptible to free radical attack in a composition containing said component.

28. Use of a particle of a metal oxide as defined in any one of claims 1 to 6 to reduce the rate of loss in UV absorption of a sunscreen composition containing
5 an organic UV sunscreen agent which is adversely affected by free radical attack.

29. Use of a particle of a metal oxide as defined in any one of claims 1 to 6 to increase the shelf life of one or more veterinarily, agriculturally and/or horticulturally active compounds in a composition suitable for veterinary, agricultural, horticultural or household use.

10 30. A method of increasing the effectiveness of a composition which comprises one or more components which are susceptible to free radical attack which comprises incorporating into the composition a particle of a metal oxide as defined in any one of claims 1 to 6.